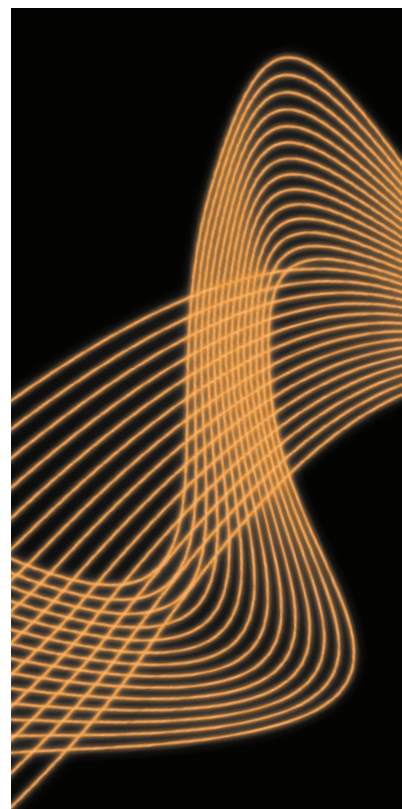


PCR Plates



Hard-Shell® PCR Plates

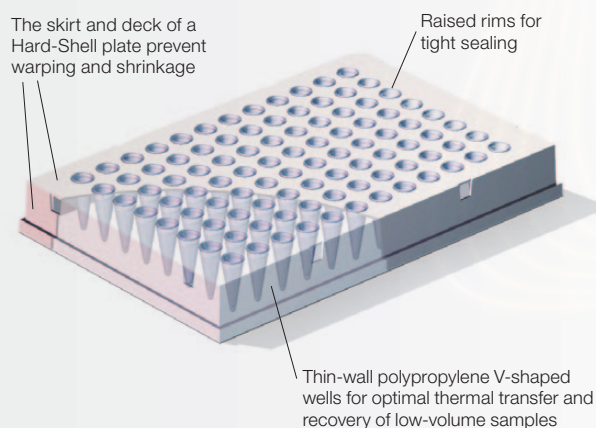


BIO-RAD

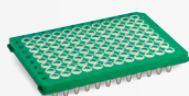
Two-Component Design for Superior Uniformity and Precise Handling

Hard-Shell PCR plates are specifically designed to withstand the stresses of thermal cycling, robotic handling, and heat sealing. They represent an innovative concept in PCR plate design. The skirt and deck are molded from a rigid thermostable polymer. This hard shell prevents the distortion and shrinkage that may occur when regular single-component polypropylene PCR plates are exposed to the high temperatures of thermal cycling or heat sealing. In a separate step, the thin-wall wells are molded of virgin polypropylene selected for low DNA binding. The raised rims around each well allow tight sealing using a variety of procedures, including pressure-, adhesive-, and heat-sealing methods. Hard-Shell PCR plate attributes include:

- Superior stability and flatness, allowing precise positioning for automation
- Extremely uniform wells that reduce well-to-well variability in optical assays, such as those used in real-time PCR
- Thin wall for fast PCR
- 4 plate styles that fit most thermal cyclers, real-time PCR detection systems, DNA sequencers, and plate readers
- Black or white alphanumeric labeling for easy well identification
- White-well option, which allows increased fluorescent signal strength
- Color-coded skirts with clear wells
- Low-cost, user-readable bar codes to enable convenient database tracking
- Free of DNase, RNase, and human DNA
- ANSI/SBS standard dimensions



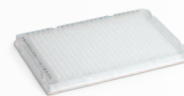
Hard-Shell PCR Plate Compatibility Chart



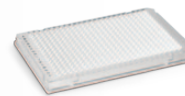
High-Profile 96-Well Semi-Skirted Plates



Low-Profile 96-Well Skirted Plates



384-Well Standard Plates

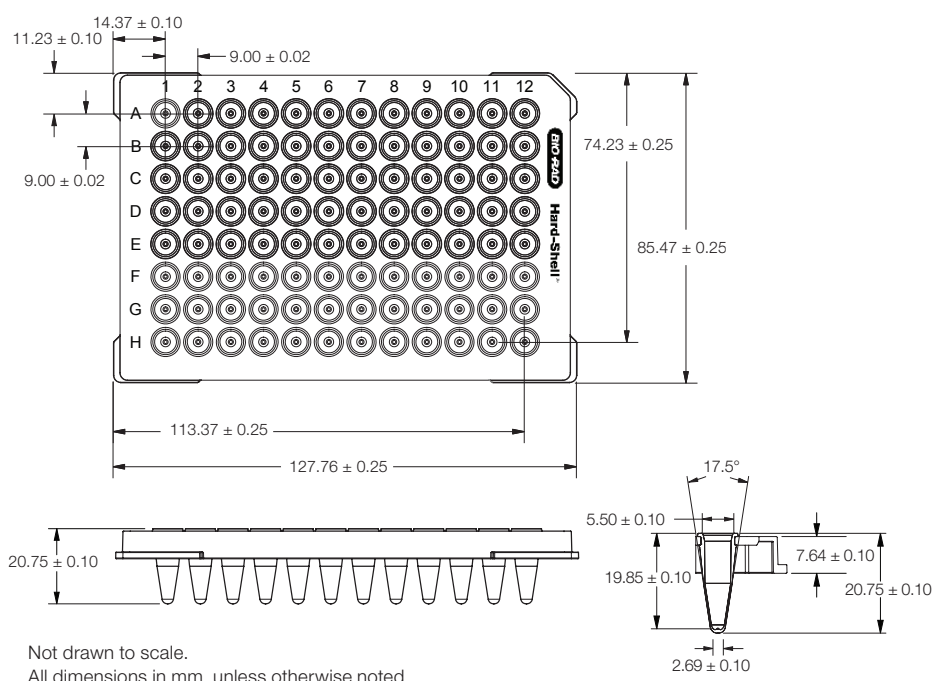
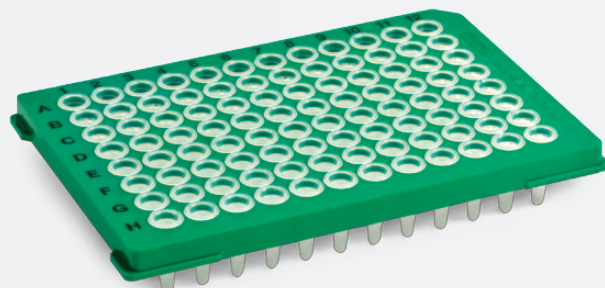


384-Well 480 Plates

Catalog number	HSS-9xxx	HSP-9xxx	HSP-3xxx	HSR-4xxx
Well height	High-profile	Low-profile	Standard 384-well height	Standard 384-well height
Skirt	Semi-skirted	Full-skirted	Full-skirted	Full-skirted
ANSI/SBS standard dimensions	Yes	Yes	Yes	Yes
Thermal Cycler Compatibility				
Bio-Rad C1000™ and S1000™	●	●	●	●
Bio-Rad DNA Engine®, DNA Engine Tetrad® and Tetrad 2, DNA Engine Dyad®, and Dyad Disciple™	●	●	●	●
Bio-Rad iCycler®	●		●	●
Bio-Rad PTC-100®	●	●		
Applied Biosystems cyclers with standard blocks	●		●	●
Eppendorf Mastercycler series	●	●	●	●
Real-Time PCR Detection System Compatibility				
Bio-Rad CFX96™ and CFX384™		●	●	●
Bio-Rad iQ™5, iCycler iQ®, MyiQ™, and MyiQ™2	●			
Bio-Rad Chromo4™	●	●		
Bio-Rad DNA Engine Opticon® and Opticon 2		●		
Applied Biosystems systems with standard blocks (7300, 7500, 7900HT, etc.)	●		●	●
Roche LightCycler 480				●
Eppendorf Mastercycler ep <i>realplex</i>	●	●		
Stratagene Mx series	●			
Other Instrument Compatibility				
Applied Biosystems DNA sequencers (3700, 3730, etc.)	●		●	
Idaho Technology LightScanner	●	●	●	

High-Profile 96-Well Semi-Skirted PCR Plates

- High-profile wells that fit most thermal cyclers, real-time PCR detection systems, and DNA sequencers
- Half-height skirt for stiffness and labeling surface
- Black lettering for easy well identification



Microplate Dimensions

Hard-Shell High-Profile 96-Well Semi-Skirted PCR Plates (HSS-9xxx)

Length at top plane	127.76 mm
Width at top plane	85.47 mm
Height overall	20.75 mm
Well depth	19.85 mm
Well diameter at opening	5.50 mm
Well diameter at bottom of conical section	2.69 mm
Well volume	350 µl
Well spacing	9.00 mm
Well angle	17.5°
Well offset	
Left edge to well A1	14.37 mm
Top edge to well A1	11.23 mm
Left edge to H12	113.37 mm
Top edge to H12	74.23 mm

Ordering Information

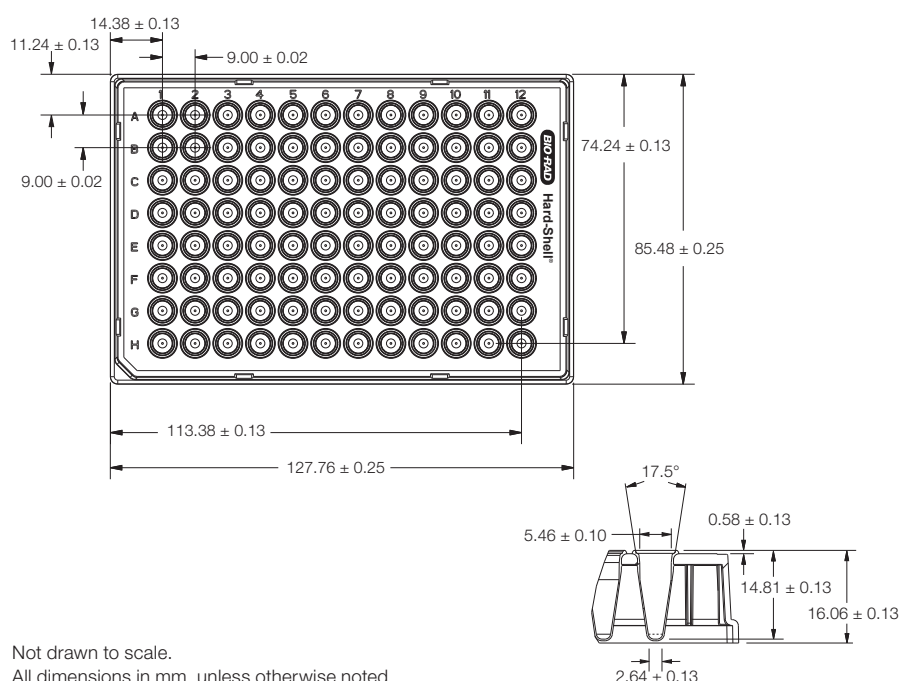
Catalog #	Description
HSS-9601	Hard-Shell High-Profile 96-Well Semi-Skirted PCR Plates , clear well, clear shell, 25
HSS-9641	Hard-Shell High-Profile 96-Well Semi-Skirted PCR Plates , clear well, green shell, 25
HSS-9665	Hard-Shell High-Profile 96-Well Semi-Skirted PCR Plates , white well, black shell, 25
HSS-9901	Hard-Shell High-Profile 96-Well Semi-Skirted PCR Plates With Bar Codes , clear well, clear shell, 25

Sealing Caps and Films

TCS-0801	Domed 8-Cap Strips , for 0.2 ml tubes and plates, natural, 120
TCS-0803	Optical Flat 8-Cap Strips , for 0.2 ml tubes and plates, ultraclear, 120
MSA-5001	Microseal® 'A' Film , package of 50 seals
MSB-1001	Microseal 'B' Adhesive Seals , optically clear, 100
MSC-1001	Microseal 'C' Optical Seals , 100 seals
MSF-1001	Microseal 'F' Foil , package of 100 seals

Low-Profile 96-Well Skirted PCR Plates

- Low-profile wells optimized for low-volume reactions and fast PCR
- Full skirt for robotic handling and labeling surface
- The footprint and well spacing match ANSI/SBS standard dimensions



Microplate Dimensions		Hard-Shell Low-Profile 96-Well Skirted PCR Plates (HSP-9xxx)
Length at base plane	127.76 mm	
Width at base plane	85.48 mm	
Height overall	16.06 mm	
Well depth	14.81 mm	
Well diameter at opening	5.46 mm	
Well diameter at bottom of conical section	2.64 mm	
Well volume	200 µl	
Well spacing	9.00 mm	
Well angle	17.5°	
Well offset		
Left edge to well A1	14.38 mm	
Top edge to well A1	11.24 mm	
Left edge to H12	113.38 mm	
Top edge to H12	74.24 mm	

Ordering Information

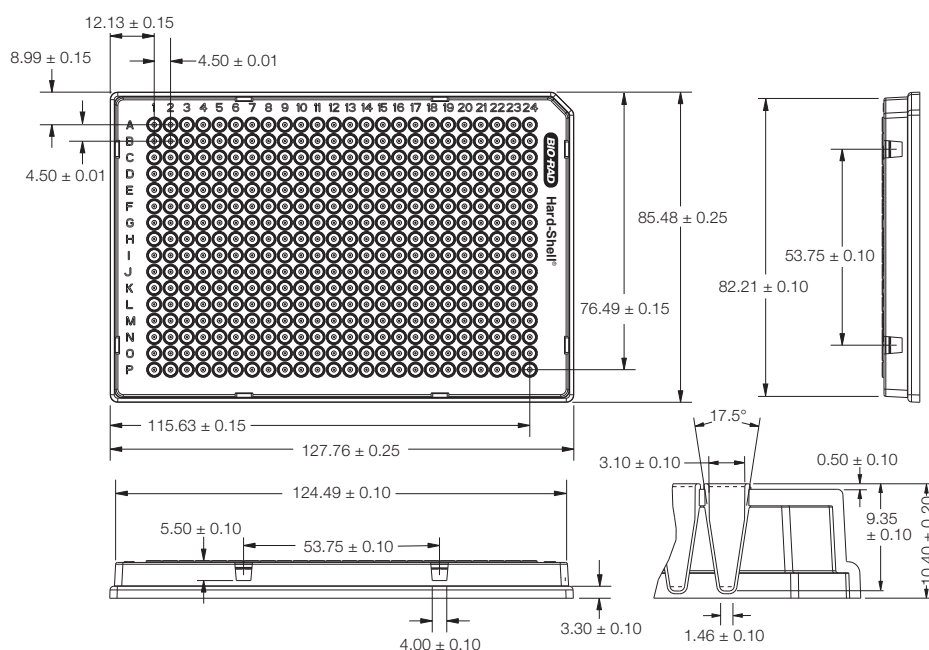
Catalog #			Description
Hard-Shell Low-Profile 96-Well Skirted PCR Plates, 50			
Clear Wells	White Wells	Black Wells	
HSP-9601	HSP-9655	—	White shell
HSP-9611	—	—	Red shell
HSP-9621	—	—	Yellow shell
HSP-9631	HSP-9635	—	Blue shell
HSP-9641	HSP-9645	—	Green shell
HSP-9661	HSP-9665	HSP-9666	Black shell
HSP-9901	HSP-9955	—	White shell, bar-coded

Sealing Caps and Films

TCS-0801	Domed 8-Cap Strips , for 0.2 ml tubes and plates, natural, 120
TCS-0803	Optical Flat 8-Cap Strips , for 0.2 ml tubes and plates, ultraclear, 120
MSA-5001	Microseal 'A' Film , package of 50 seals
MSB-1001	Microseal 'B' Adhesive Seals , optically clear, 100
MSC-1001	Microseal 'C' Optical Seals , 100 seals
MSF-1001	Microseal 'F' Foil , package of 100 seals

384-Well Standard PCR Plates

- Compatible with most 384-well thermal cyclers, real-time PCR detection systems, and DNA sequencers
- Warp-free skirt and deck for improved robotic handling
- The footprint and well spacing match ANSI/SBS standard dimensions



Not drawn to scale.
All dimensions in mm, unless otherwise noted.

Microplate Dimensions

Hard-Shell 384-Well Standard PCR Plates (HSP-3xxx)	
Length at base plane	127.76 mm
Width at base plane	85.48 mm
Height overall	10.40 mm
Well depth	9.35 mm
Well diameter at opening	3.10 mm
Well diameter at bottom of conical section	1.46 mm
Well volume	50 µl
Well spacing	4.50 mm
Well angle	17.5°
Well offset	
Left edge to well A1	12.13 mm
Top edge to well A1	8.99 mm
Left edge to P24	115.63 mm
Top edge to P24	76.49 mm

Ordering Information

Catalog # Description

Hard-Shell 384-Well Standard PCR Plates, 50

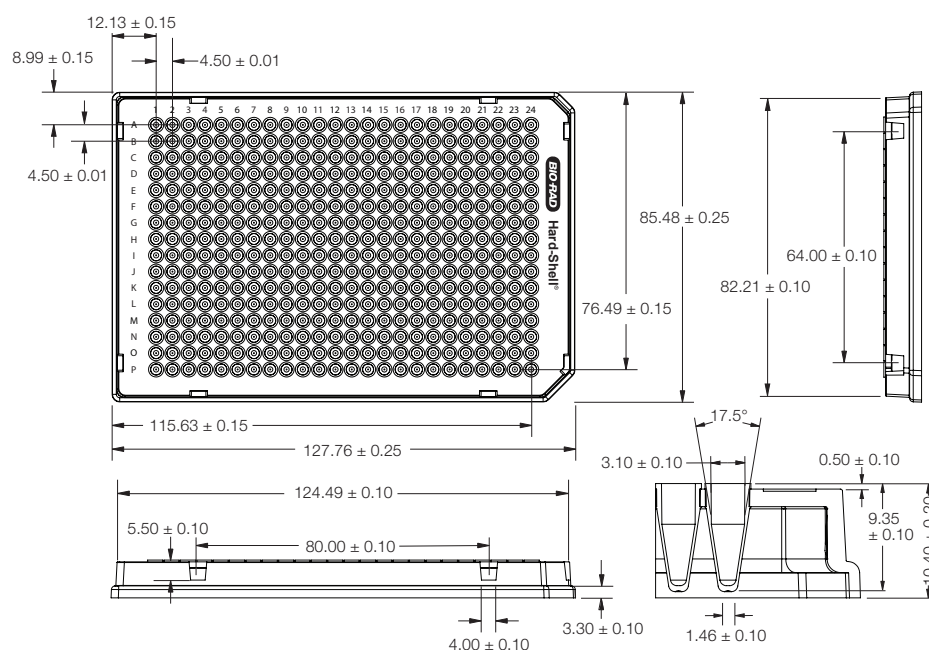
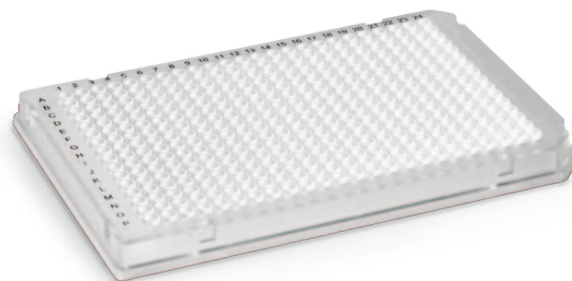
Clear Wells	White Wells	Black Wells	
HSP-3801	HSP-3805	—	Clear shell
HSP-3811	—	—	Red shell
HSP-3821	—	—	Yellow shell
HSP-3831	—	—	Blue shell
HSP-3841	—	—	Green shell
—	HSP-3865	HSP-3866	Black shell
HSP-3901	HSP-3905	—	Clear shell, bar-coded

Plate Sealers

MSB-1001	Microseal 'B' Adhesive Seals, optically clear, 100
MSC-1001	Microseal 'C' Optical Seals, 100 seals

384-Well 480 PCR Plates

- Designed for Roche LightCycler 480 real-time PCR system
- Warp-free skirt and deck for improved robotic handling
- The footprint and well spacing match ANSI/SBS standard dimensions
- Bar-coded on row A side
- Available in clear or white well



Not drawn to scale.
All dimensions in mm, unless otherwise noted.

Microplate Dimensions		Hard-Shell 384-Well 480 PCR Plates (HSR-4xxx)
Length at base plane	127.76 mm	
Width at base plane	85.48 mm	
Height overall	10.40 mm	
Well depth	9.35 mm	
Well diameter at opening	3.10 mm	
Well diameter at bottom of conical section	1.46 mm	
Well volume	50 µl	
Well spacing	4.50 mm	
Well angle	17.5°	
Well offset		
Left edge to well A1	12.13 mm	
Top edge to well A1	8.99 mm	
Left edge to P24	115.63 mm	
Top edge to P24	76.49 mm	

Ordering Information

Catalog #	Description
HSR-4805	Hard-Shell 384-Well 480 PCR Plates , white well, clear shell, bar-coded, 50
HSR-4805K	Hard-Shell 384-Well 480 PCR Plates and Seals , white well, clear shell, bar-coded, 100 plates and 100 Microseal 'C' optical seals
HSR-4801	Hard-Shell 384-Well 480 PCR Plates , clear well, clear shell, bar-coded, 50
HSR-4801K	Hard-Shell 384-Well 480 PCR Plates and Seals , clear well, clear shell, bar-coded, 100 plates and 100 Microseal 'C' optical seals

Plate Sealers

MSC-1001	Microseal 'C' Optical Seals , 100 seals
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LightCycler is a trademark of Roche Diagnostics GmbH. LightScanner is a trademark of Idaho Technology Inc. Mastercycler is a trademark of Eppendorf AG. Mx is a trademark of Stratagene Corporation.

Hard-Shell plates are covered by one or more of the following U.S. patents or their foreign counterparts owned by Eppendorf AG: U.S. Patent Numbers 7,347,977; 6,340,589; and 6,528,302.

Notice regarding Bio-Rad thermal cyclers and real-time systems:
Purchase of this instrument conveys a limited non-transferable immunity from suit for the purchaser's own internal research and development and for use in human in vitro diagnostics and all other applied fields under one or more of U.S. Patent Numbers 5,656,493; 5,333,675; 5,475,610 (Claims 1, 44, 158, 160–163, and 167 only); and 6,703,236 (Claims 1–7 only), or corresponding claims in their non-U.S. counterparts, owned by Applera Corporation. No right is conveyed expressly, by implication or by estoppel under any other patent claim, such as claims to apparatus, reagents, kits, or methods such as 5' nuclease methods. Further information on purchasing licenses may be obtained by contacting the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.

Bio-Rad's real-time thermal cyclers are licensed real-time thermal cyclers under Applera's United States Patent Number 6,814,934 B1 for use in research, human in vitro diagnostics, and all other fields except veterinary diagnostics.

Bio-Rad's thermal cyclers and real-time thermal cyclers are covered by one or more of the following U.S. patents or their foreign counterparts owned by Eppendorf AG: U.S. Patent Numbers 6,767,512 and 7,074,367.



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Laboratories, Inc.**

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